

REMARKS

This amendment is submitted with a Request for Continuing Examination, and is in response to the outstanding final Official Action mailed March 11, 2003. The amendment follows the May 4, 2004 interview with the Examiner, which is gratefully acknowledged. In view of the matters discussed at the interview, the above claim amendments and the remarks which follow, reconsideration and allowance of this application is respectfully requested.

At the interview, it was agreed to better define the simultaneous mechanochemical and hydrothermal method step over the prior art by reciting in claim 6 that the method mechano-chemically comminuted and dissolved the ion sources, at least one of which was water-insoluble, while simultaneously hydrothermally reacting them without external heating. It was also agreed at the Examiner's request to limit claim 6 to biocompatible materials and to specify a range of magnesium content. Applicants reserved the right to file a Continuation Application directed to subject matter in which the magnesium content was not limited and the magnesium-substituted hydroxyapatite was not necessarily biocompatible.

Accordingly, claim 6 has been amended to recite that the method mechanochemically comminutes and dissolves the ion sources, at least one of which is water-insoluble, while hydrothermally reacting them without external heating. At least one ion source being water-insoluble was recited in original claim 12, which is now canceled. The comminuting and dissolving of the ion sources is disclosed in the specification at page 7, lines 22 - 25. The lack of external heating is disclosed in the specification at page 7, line 15. The addition of these limitations thus does not introduce new matter.

Claim 6 has also been amended to recite that the ion sources are stoichiometrically selected to provide a level of magnesium between about 2.0 and about 29 wt%. The stoichiometric selection was recited in original claim 7, and the magnesium range was recited

in original claim 1, both of which are now canceled. Finally, claim 6 has been amended to recite that the magnesium-substituted hydroxyapatite is biocompatible. This was recited in original claim 22, which is also now canceled. Thus, the addition of these limitations also do not introduce new matter.

For reasons which are submitted below, the claims in their present form are in condition for allowance. Accordingly, reconsideration is respectfully requested.

Turning to the Official Action, claims 6 - 10 and 15 - 19 were rejected under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as being obvious in view of, Yasukawa et al. The stirring step of Yasukawa was cited as being a simultaneous hydro-thermal and mechanochemical reaction. The rejection is respectfully traversed in view of the matters discussed at the interview and the above claim amendments for the reasons set forth hereinafter.

Claim 6 has been amended to clarify that the mechanochemical aspect of the method comminutes and dissolves the ion sources, at least one of which is water-insoluble, while the hydrothermal aspect of the method is performed without external heating. It was explained at the interview that Yasukawa et al. did not mechanochemically comminute and dissolve the ion sources and ultimately performed a hydrothermal heating step at significantly elevated temperature and pressure. As explained both in the present specification and at the interview, the novel aspects of the presently claimed invention result in the substitution of magnesium in the lattice structure and permit the reproducible and low-cost fabrication of high-quality magnesium-substituted hydroxyapatite powders in large batch sizes with heretofore unknown levels of magnesium substitution.

Because Yasukawa et al. do not teach mechanochemically comminuting and dissolving the ion sources and further apply external heat thereto, claim 6-10 and 15-19 are not anticipated by this publication under 35 U.S.C. §102(b). And because Yasukawa et al. contains no suggestion that aqueous mechanochemical processing would produce hydroxyapatites in which magnesium is substituted for calcium in the lattice structure, and

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instead teaches that with increasing magnesium content the particles become less crystalline and eventually amorphous, the rejected claims are also not obvious in view of Yasukawa et al. under 35 U.S.C. § 103 (a). Reconsideration by the Examiner and withdrawal of this rejection is therefore respectfully requested.

Accordingly, in view of the above claim amendments, the matters discussed at the interview, and the foregoing remarks, this application is now in condition for allowance. Reconsideration is respectfully requested.

The Examiner is requested to telephone the undersigned if it is believed that there are any remaining issues in this application to be resolved. Finally, if there are any additional charges in connection with this response, the Examiner is authorized to charge Applicants' Deposit Account No. 19-5425 therefor.

Respectfully submitted,


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